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SPECIALIZATION IN MEDICAL TECHNOLOGY

By KANO IKEDA, M.D.
St. Paul, Minnesota

Nearly two decades ago, it was my privilege to encourage the technicians in my laboratory to organize a society composed of laboratory workers. This was a beginning of the present Twin-City Society of Laboratory Technicians, one of the first of such organizations in the United States. The purpose of this organization was not economic but purely scientific and social. To this organization, a few years later, I first presented a plan of registering laboratory technicians, a plan out of which the present Registry of Medical Technologists was soon to be born. The reception of this plan by this group was cool and indifferent. However, to me in those days, the standardization of the qualifications of laboratory workers, the registration of qualified technicians by a central agency and the organization into a national society of those so registered, seemed to be the essential prerequisites of their professionalization with its attendant benefits, and of the elevation of laboratory service in general, including the benefit to the practice of clinical pathology. This conviction on my part had been born out of my own personal experience both as a technician and as a clinical pathologist. Nevertheless, much objection was encountered, not only from the technicians themselves, but from physicians, particularly the pathologists.

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* *Presented at the Annual Meeting of the American Society of Medical Technologists, June 12, 1944, Chicago, Ill.*

I have a vivid recollection of reading a number of letters and comments from prominent clinical pathologists and medical educators condemning, in no uncertain terms, this revolutionary notion of trying to professionalize the laboratory workers.

The more serious of these objections were: 1. To require higher standards of qualifications would be to encourage these subordinate workers to usurp the functions of the clinical pathologist; 2. To register and give official approval to them would be to invite them to unionize themselves for economic gain. Among the less serious of the objections might be mentioned: 1. To require higher education and a prolonged training period would make their services more costly; 2. These workers, after all, should not require scientific background, since they merely perform mechanical procedures, without necessarily knowing the fundamentals involved. On the part of the technicians, many appeared to be satisfied with their status as it was or were skeptical of the plan; others held an erroneous notion and fear that, since the scheme had been initiated by the clinical pathologist, for his own interest, the technician must forever suffer the domination of the former, which would be intolerable in a Democracy.

These and other objections have since been substantially overcome, chiefly through the demonstration of the high qualifications of the Registered medical technologists, for which the American Society of Clinical Pathologists and its Registry can rightly claim a share of credit along with the medical technologists themselves. Medical Technology is now firmly established and accepted as a scientific profession.

We have now come to a place where further development of the profession seems indicated and desirable. I refer to the specialization in medical technology. All other professions, notably medicine, have, more and more, become the professions of specialties. The demand for scientific practice of medicine, has made it impossible for one man, no matter how well grounded in basic sciences and trained in the art of medicine in general, to become a master in all of its branches. While over-specialization would be undesirable and deplored, it is generally agreed that the medical profession must have specialized men in its various branches of practice who shall devote most of their time in the particular

specialty. This is done for the sake of better medical practice as well as for the advancement of medical science.

Precisely, the same may be applied to the practice of medical technology. Those of us who are associated with hospitals or clinics where a clinical laboratory is maintained to serve trained medical men and assist in training young medical graduates, have come to be keenly aware of the necessity and wisdom of rendering specialized, expert service, in every department of the laboratory. The conception that the clinical pathologist should and could perform the combined functions of a trained chemist, bacteriologist, hematologist, etc., as well as, act as a pathologist, has long been outmoded. While it must remain to be his function to interpret and correlate the results obtained by various complicated procedures, it is no longer possible or feasible for him to act, at once, as an accomplished bacteriologist, a good bio-chemist, an expert serologist, etc. This situation has, undoubtedly, come to stay, especially when it is realized that the road to laboratory directorship or the position of clinical pathologist is usually through Residency or Fellowship in Pathology in which the greater emphasis is placed in surgical pathology and morbid anatomy, and, as a rule, less in clinical pathology.

Therefore, the clinical pathologist must increasingly look to the bacteriologist, serologist, chemist, and other specialists for the fulfillment of his function. For many years, this happy situation, in a modified sense, has existed, to a more or less extent, in larger teaching hospitals and research laboratories, usually in affiliation with a medical school. On the other hand, the average general private hospital clinical laboratories have had little occasion to organize their departments with trained specialists according to its real present day needs. Medical technologists with or without the special training or aptitude have carried on various specialized procedures, efficiently, only in a limited sense. The more fortunate of the laboratories of this type may have one or more medical technologists with major interest or training in bio-chemistry, bacteriology, etc., to render reasonably satisfactory specialized service. The majority, however, are less fortunate in this regard.

Today, the time seems to be opportune when the clinical labora-

tory of general hospitals, at least, where intern training is being carried out, should be so organized and departmentalized that among its staff should be included medical technologists with special training in major basic sciences, the number of such specialized technologists to be determined according to the experience and needs of the particular laboratory.

Like the specialists in medicine, these specialized medical technologists should have a degree in science and have preferably received general fundamental training in medical technology, before entering into their chosen specialty.

As in medicine, over-specialization should be discouraged, but rather, we should encourage and expect the majority of medical technologists to remain in general practice, for which there is a greater need than can be met.

To be more specific, those among the present and future medical technologists who have the aptitude and ambition should be encouraged to spend an additional period of study and training to become specifically qualified in any of the basic laboratory sciences, such as bio-chemistry, bacteriology, serology, hematology, etc., and be given due recognition of their specialization, so that they may fill the needs of a number of larger hospital laboratories where their special training can be utilized with advantage, to give such laboratories more authoritative background, and such service a greater distinction and wider usefulness.

While it is impossible for me, at this time, to offer a definite and specific program of training for a candidate for speciality in medical technology, a broad outline may be briefly laid down: First, to preferably be trained as a qualified medical technologist by meeting the present requirements of the Registry or to obtain a degree of bachelor of science, majoring in the special subject in which she wishes to specialize; second, to pursue a postgraduate course of study of not less than twelve months in the same subject preferably leading to a master's degree; and third, to obtain practical training and experience of not less than twelve months in the same field of speciality in a teaching laboratory or in a clinical laboratory, specially recognized for such instruction by the American Medical Association or the American Society of Clinical Path-

ologists. It would be advisable to seek and obtain the full and whole-hearted co-operation of Universities and medical schools in this undertaking, so that they may offer an advanced degree in specialities in medical technology, thus giving added prestige and incentive to the prospective candidates.

In the Registry of Medical Technologists, there already exists a provision whereby a qualified medical technologist may be certified in any of the specialities in medical technology. This function of the Registry should be continued. However, no organized efforts have been put forth to interest and encourage the future medical technologist to pursue a specialized course of training to equip her to meet the particular demand. Initiative for such steps may well rest with the organized groups of medical technologists. This could be a challenge of the day which your Society should meet as a post-war problem of first importance.

The Registry of Medical Technologists, in its fifteen years of existence, has supplied initiative and guidance in the advancement of medical technology and contributed much in the edification of the medical technologist. To be virile and fruitful, however, the American Society of Medical Technologists must cultivate initiative in the interest of its members and their fellow professionals. It must assume positive leadership to guide the future destiny of their profession. To work out a plan whereby qualified medical technologists may find a way to obtain further recognition as specialists, as outlined here, as well as to sponsor such other undertakings as the expansion of your technical journal, the organization of refresher courses, the further stimulation to increase membership and organize state societies, and the like, it seems to me, would be a long step toward the realization of that positive leadership without which no organization of purposeful men and women could ever hope to survive.

SUMMARY and CONCLUSIONS: There is an increasing demand, in the modern clinical laboratory, for specialized technical service or service of the medical technologists specially trained in specific branches of basic medical sciences. Specialization in medical technology, therefore, is a logical forward step in modern laboratory

service. What constitutes such specialization is briefly outlined. Initiative and leadership to interest the present and future medical technologists toward its realization rest, primarily, with the organized groups of medical technologists. The American Society of Medical Technologists is urged to assume leadership in the initiation and attainment of this and many other projects, vital to the future development and well being of the medical technologist.

—From the Pathological Laboratory of the
Charles T. Miller Hospital, St. Paul.

THE INCIDENCE OF TRUE ACHLORHYDRIA IN APPARENTLY HEALTHY WOMEN

From the Clinical Laboratories of St. Mary's Hospital in conjunction with College of St. Scholastica, Duluth, Minnesota

By SR. M. ALCUIN, ARENS, O.S.B., M.T., B.S., R.N., M.S.

Several workers[1] have shown that there is a correlation between achlorhydria and age in health. Seeing that in their groups there were few subjects with ages under 23 years, it might be helpful to add a few more data for these ages.

In an experiment[2] devised primarily to consider hematopoiesis as related to gastric acidity through a study of gastric secretions and correlated blood counts, 123 females, ages 13-23 years inclusively participated. Out of the 123 experimental subjects, seven were apparently achlorhydric when stimulated with a modified Ewald test meal. Four of these were willing to be histamine confirmed.

The confirmation was made, after 20 hours of fasting, by a hypodermic injection of 0.1 mg. histamine acid phosphate per kilograms of body weight. A pre-histamine fasting specimen and six 10 minutes post-histamine specimens were expressed in toto, measured, and analyzed for acid. The findings are recorded in Table I and Figures 1-4 inclusively. From the data it is obvious that the four subjects tested were only apparent achlorhydrics. Some disposition had to be made of the three apparent achlorhydrics, refusing to be histamine injected.

The group of seven achlorhydrics were studied comparatively with a view to bringing out some contrasting feature that might make the other three collectively or singly appear truly achlorhydric. The following findings were common to all seven of the girls: They began their menstrual periods between the ages of 12 and 13 years, maintained good body weight up-to-date; yielded a gastric expression from the cookie meal stimulus less in volume than a similar expression on subjects who were not functionally achlorhydric; yielded combined acids averaging about 20°; complained of no bowel

trouble during any time of their lives; and, although their blood values lay within the range normal to all participants of this study, slight variations occurred so that one in each group gave a history of anemia in some previous period of her life. There was no uniformity among the seven relative to whether their parents suffered from blood diseases or bowel trouble in their lives. But a feature

TABLE I

RESULTS OF HISTAMINE HYPODERMICS ON FOUR APPARENT ACHLORHYDRICS

Case No.	Time Interval (min.)	Cc. Volume	Degrees Free Acid	Degrees Total Acid
31	0	7	0	6
	10	27	40	65
	20	35	91	126
	30	25	131	141
	40	35	127	130
	50	30	130	151
	60	13	36	110
107	0	17	0	20
	10	22	22	35
	20	25	86	114.5
	30	23	124	150
	40	21	125	136
	50	10	118	
	60	2 cc. followed by 30 additional cc. of bilish colored fluid.		
151	0	10	0	21
	10	35	47	68
	20	20	63	85
	30	35	77	98
	40	?	90	113
	50	27	60	85
	60	30	39	54
178	0	7	0	18
	10	11	90	21
	20	17	190	130
	30	28	135	159
	40	33	150	159
	50	16	132	154
	60	14	154	158

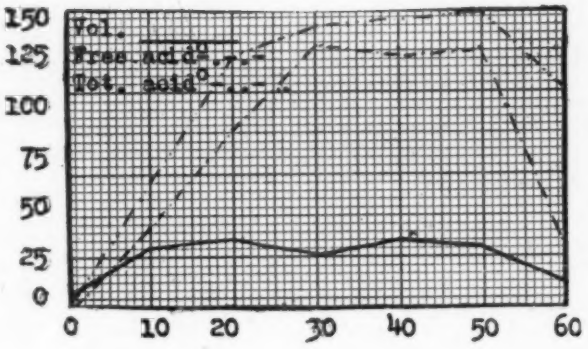


Fig. 1—Case No. 31 (See Table I)

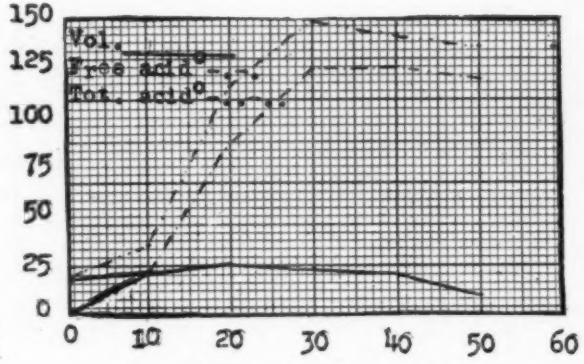


Fig. 2—Case No. 107 (See Table I)

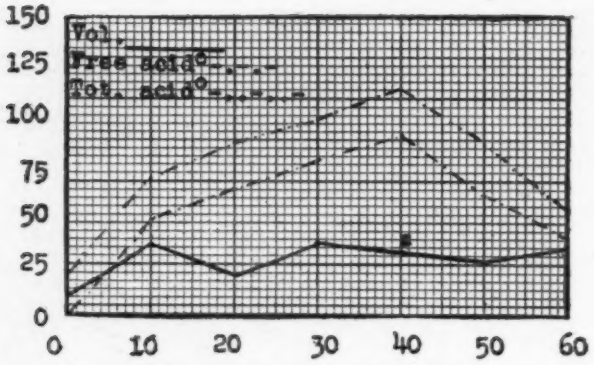


Fig. 3—Case No. 151 (See Table I)

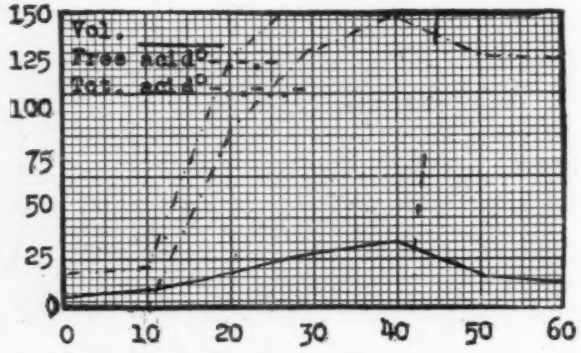


Fig. 4—Case No. 178 (See Table I)

showed up in one of the three not histamine-confirmed that made her distinctly different from the other six,—she gave a history of her father dying of cancer of the stomach in 1934; and she, herself, although apparently in good health now (1943) has, aside from the achlorhydria, a color index of the blood approaching 1.1. At present she is 22 years old. Her father, at the time of his death, was but 46 years old. That she is a true achlorydric can only remain conjecture, but she is the best suspect of the seven.

Granted that this 22 year old girl is a true achlorhydric, the percentage of achlorhydrics in this study is less than 1 per cent. This is much lower than shown by Vanzant and Alvarez.[1] (See Table II.

Bloomfield and Keefer showed by histamine confirmatory tests that of 300 achlorhydrics found in a group of 1500 persons comprising all ages and sexes, 85 per cent of the 300 were apparent achlorhydrics and only 15 per cent were true achlorhydrics. On the basis of the total examined, this makes approximately three per cent of the population true achlorhydrics, making the number who fail to secrete free acid under any amount of histamine stimulation rare. According to Bloomfield and Keefer this three per cent is usually associated with serious organic disorder.[3] Sagal[4] maintains that true achlorhydria is a possible predisposing factor of serious organic disease such as pernicious anemia or gastric cancer, the cancer developing possibly six or eight years after the appearance of the achlorhydria. Shay[5] states: "Gastric anacidity capable of far-reaching effect . . . even in the absence of signs or symptoms . . . deserves adequate replacement therapy to offset its potentialities for harm."

If the one assumed to be truly achlorhydric in this study is really so, then six out of seven, or 85 per cent of all achlorhydrics cannot be histamine confirmed and this percentage corresponds with that of Bloomfield and Keefer. This percentage covers some 20 conditions associated with almost every disorder, defect, or ailment to which the human body is subject and the cause is to be found in some factor in or remote to the stomach.[6]

That 85 per cent of all achlorhydrics cannot be histamine confirmed is not the only verifiable conclusion based on histamine testing that was duplicated in this study. There were other findings,

minor variations excepted, which are statistically recorded in Figures 1-4 inclusively and Table 1. They are as follows:

1. The maximum post-histamine volume secreted was not under 15 cc. or over 35 cc., the range being from 25-35 cc. (21-35 cc.—Polland[7]). The volume curves differed with the individuals but had general curve characteristics, viz., an increase in the first 10 minutes and a maximum in about 20-40 minutes (20-30 minutes—Polland[8]), with a decrease so that at the 50 minutes' interval the volume was approximately that of the pre-histamine level. (Note—The dips in the volume curve for Cases 31 and 151 are due to technical errors.) It is to be noted that there was a relatively greater increase in volume in Cases 31, 151, and 178, where the initial volumes were smaller than in Case 107 where the initial volume was greater. The post-histamine specimens were all clear, limpid and slightly opalescent with the exception of the 50 minutes specimen of Case 107 which was expressed as in initial 2 cc. of typical gastric juice followed by a fraction of 30 cc. of bile-colored fluid—(duodenal regurgitation?).

As to the acidity, three out of the four of the cases secreted a maximum free hydrochloric acid over 100° and Case 178 a maximum of 159°—the greatest amount the human stomach is thought capable of secreting.[7,9] In three of the cases free hydrochloric acid made its appearance in the first 10 minutes' specimen. In Case 178, on the other hand, the acid did not appear until the 30 minutes' specimen, but Case 178 also gave retarded responses to other stimuli. All these findings are confirmations, with the indicated minor variations, of the work done by Polland and Bloomfield in histamine testing.

That conflicting data on achlorhydria in health exists seems to be due to inconsistent use of histamine. In this study alone, *without* zealous experimentation, the normal percentage distribution of achlorhydrics, Table 2, confirms the records to be found in the literature, the Rochester records being used as an illustration in the comparison because they are widely known. But *with* zealous experimentation it fails to confirm these same records as Table 2 also shows.

TABLE II

"NORMAL" PERCENTAGE DISTRIBUTION OF ACHLORHYDRICS

	— Duluth —		— Rochester —	
Age span in years	15-19	20-23	15-19	20-24
Apparently true	4	3	4	4
"Confirmed" true	0	1	4	4

When the methods from which experimenters drew their conclusions were examined, the inconsistency in the use of histamine centered about the size and about the frequency of dosages. Table III briefly illustrates representative details with respect to histamine experimentation as recorded in the literature

TABLE III

HISTAMINE USAGE

Experimenter	Dosage	Body Weight	Administered
Berglund, et al.[10]	0.3 mg.	Disregarded	Hypodermically
Bloomfield, et al.[9]	0.5 mg.	Disregarded	Hypodermically
Carey, et al.[12]	0.5 mg.	Disregarded	Hypodermically
Bockus, et al.[13]	1.0 mg.	Disregarded	Hypodermically
Gaither[14]	"tablet"	Disregarded	Hypodermically
Polland[15]	0.1 mg.	Per 10 Kg. body wt.	Hypodermically
This study	0.1 mg.	Per 10 Kg. body wt.	Hypodermically

The only feature common to the work of all histamine experimenters is the method of injection. The greatest disregard seems to be in the dosage and the next greatest apparently in not repeating injections until consistent results are obtained. According to records stimulations were made a limited number of times usually not more than a second repetition. Carey[12] has shown upon repeated stimulation on achlorhydrics, and he had 44 achlorhydrics under observation, instances where no acid was secreted upon the first hypodermic but all secreted acid upon the second. On the other hand he showed that cases existed in which a second stimulation falsified the first in the reverse order. Keefer and Bloomfield[6] concluded that functional anacidity (apparent achlorhydria) may show acid on a second or third stimulation while organic anacidities (true achlorhydria) will show no acid under any stimulation.

In the light of this there seems justification for saying that the inconsistency in the use of histamine in experimentation may be the cause of the conflicting data recorded for true achlorhydria in health. (And for other kindred statements.)

Summary.—A study was made on 123 apparently normal girls and women between 13 and 23 years of age in which it was found:

1. That less than 1 per cent of females between this age span have no free hydrochloric acid in their stomach instead of 3 per cent as the literature in this field of research states.

2. That approximately 85 per cent of all achlorhydrics are only apparently so and in this the finding agrees with some of the literature.

3. That the five or more features of a normal response to a histamine stimulus as recorded by Polland and Bloomfield have been verified in this experiment.

4. That some explanation for the lack of inconsistency in the findings relative to achlorhydrics seems to lie in the promiscuous use of histamine as a stimulus to the gastric glands. A survey of the literature shows that disregard particularly applied to the dosage and the frequency with which it is administered. In some instances the conclusions were made on a "tablet" per subject; in others on 0.3, 0.5, or 1.0 mg. per subject, instead of a uniform dosage. No apparent application was made of the fact stated by the best of authorities that apparent achlorhydria may show acid only on a second or third stimulation while true achlorhydria will show no acid under any stimulation.

Grateful acknowledgment is made to all those participating in this study.

REFERENCES

1. Vanzant, Frances R., Alvarez, Walter C., Eusterman, George S., Dunn, H. L., and Berkson, Joseph: "The Normal Range of Gastric Acidity from Youth to Old Age."
Arch. of Int. Med., XLIX (1932), 345.
2. Arens, Sister M. Alcuin, O.S.B.: "A Study of Hematopoiesis in a Group of Female Students Ages Fifteen to Twenty-three Years Through a Study of Gastric Secretions and Correlated Blood Counts."
Amer. Jour. of Med. Tech., VII (1941), 202.

3. Bloomfield, Arthur L. and Keefer, Chester: "Clinical Studies of Gastric Function."
J. A. M. A., LXXXVIII (1927), 706.
4. Sagal, Zachary, Marks, Jerome, and Kantor, John: "The Clinical Significance of Gastric Acidity."
Ann. of Int. Med., VII (1933), 76.
5. Shay, Harry, and Gershon-Cohen, J.: "Gastric Anacidity—Its Physiologic and Clinical Significance and Its Management."
Amer. Jour. Dig. Dis. & Nut., VIII (1941), 115.
6. Keefer, Chester S., and Bloomfield, Arthur L.: "The Significance of Gastric Anacidity."
Bull. of Johns Hopkins Hosp., XXXIX (1926), 304.
7. Polland, W. Scott, and Bloomfield, Arthur L.: "Normal Standards of Gastric Function."
J. Cl. Invest., IX (1931), 651.
8. Polland, W. Scott, Roberts, A. M., and Bloomfield, Arthur L.: "The Chloride, Base and Nitrogen Content of Gastric Juice after Histamine Stimulation."
J. Cl. Invest., V (1928), 611.
9. Bloomfield, Arthur L., and Keefer, Chester S.: "Relation to Various Factors Such as Age and Physical Fitness."
J. Cl. Invest., V (1928), 285.
10. Berglund, H., Wahlquist, H., and Sherwood, K. K.: "Hydrochloric Acid and Total Chlorine Content of Pure Gastric Juice Produced after Histamine Injection."
Proc. of Soc. of Exp. Biol. & Med., XXIV (1927), 927.
11. Mann, Frank D., and Mann, Frank C.: "An Experimental Study of Some Chemical Inhibitors of Gastric Acidity."
Amer. Jour. Dig. Dis., VI (1939), 322.
12. Carey, J. B., Wetherby, M., and Ylvisaker, R. S.: "Gastric Observation in Achlorhydria."
Amer. Jour. Dig. Dis., VIII (1941), 401.
13. Bockus, H. L., and Bank, Joseph: "The Value of Histamine as a Test for Gastric Function."
Arch. of Int. Med., XXXIX (1927), 508.
14. Gaither, Ernest: "Diagnostic Value of Secretory Function in Gastric Disease: Various Methods Studied and Compared."
Ann. Int. Med., V (1932), 992.
15. Polland, W. Scott, and Bloomfield, Arthur L.: "Unexplained Gastric Anacidity."
Arch. of Int. Med., XLVIII (1931), 412.

SPINAL FLUID CHEMISTRY

By PATRICIA MacMARTIN

Mary Hitchcock Memorial Hospital, Hanover, New Hampshire

Due to the increased number of spinal fluid specimens that laboratories are receiving I am presenting the routine as it is handled at the Mary Hitchcock Memorial Hospital in Hanover, New Hampshire. A spinal fluid receives a cell count immediately on arrival at the laboratory. The amount and color are recorded. Serology, Pandy and Protein are also done on each specimen. Chlorides, sugars or other tests are done only upon request.

I will not go into any detail about the cell count or the serology. These are well established procedures everywhere. The chlorides and sugars are done the same as for a blood determination save that the spinal fluid is diluted 1:10 and this dilution is treated as a filtrate. The colloidal gold test is frequently requested and this also is very simple and is in all textbooks. A small hospital can purchase the gold solution as it is quite difficult to make and not worth while unless a great many tests are done.

The protein and the Pandy are also very easy to do in the small laboratory. The Pandy is a qualitative test that has little value save as a check on the protein and is described in the textbooks.

I shall outline in detail a method for the spinal fluid protein that has been consistent in results over a period of several years in our laboratory.

Set up two small test tubes (100 x 13) about the size of the Kahn tube.

Into the first tube place: 0.6 cc. of spinal fluid
0.4 cc. distilled water
1.0 cc of 5% sulphosalicylic acid

Into the second or standard tube place: 3.0 cc of dilute Denis Ayer protein standard
3.0 cc. of 5% sulphosalicylic acid.

Both tubes should be mixed by inverting and allowed to stand for five minutes. Read in microcolorimeter set at 8.

The larger amounts used in the standard tube are to allow you to place the standard solution in both cups and properly set the colorimeter before reading the protein.

$$\text{Calculation: } \frac{Rs \times 30}{Ru \times 0.6} \text{ or } \frac{400}{Ru}$$

In the case of a high red blood cell count, subtract 1 mg. for every 750 RBC/cm of cell count. This is a simple test and reliable. It does require the Denis Ayer standard. This is not at all difficult and as it keeps well and one need only make it up about once a year. It may sound formidable to read but it works out smoothly step by step and has checked accurately on first attempts. While a large chemical laboratory would have a set-up for this, I have drawn a sketch in which only material from a small laboratory has been used to erect the equipment.

Macro-Kjeldahl

Procedure: This determination is performed along with a micro-Kjeldahl on any solution of protein which is to be used for a standard, such as the Denis-Ayer spinal fluid standard.

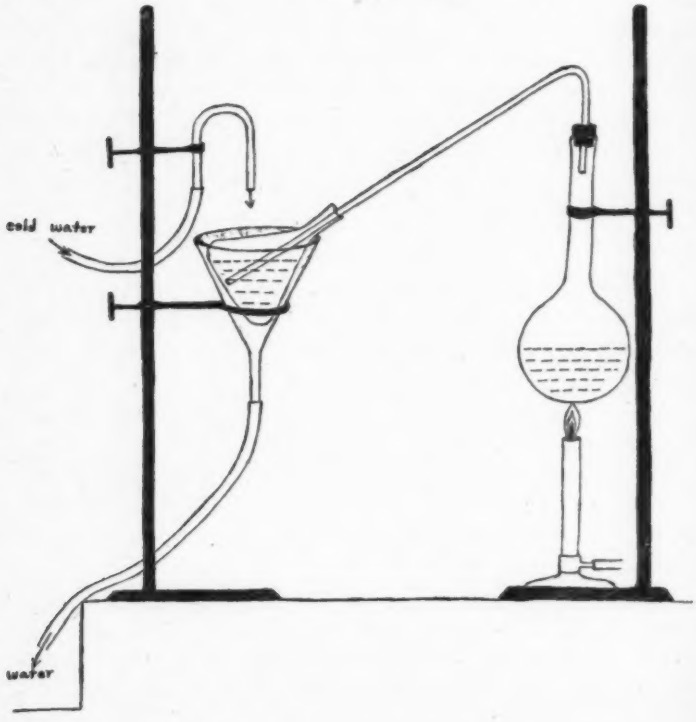
24 cc of normal blood serum are collected, preferably in as short a time as possible, keeping serum in icebox until the total amount is obtained. In 2-3 days the total should have been reached. On 1 cc of this thoroughly mixed serum perform a micro-Kjeldahl to check the macro-Kjeldahl which is to be done. On 3 cc of the serum perform a routine NPN determination, using a sodium tungstate filtrate. Record all results.

Add 20 cc of the serum to 180 cc of 15% sodium chloride and keep in icebox. This gives a 1:10 dilution of the normal serum with saline strong enough to prevent decomposition for an indefinite period. After the serum has been added to the saline, an NPN or

micro-Kjeldahl determination cannot be done, because of the interfering salt content.

Technique of macro-Kjeldahl: 40 cc of the 1:10 dilution of serum and saline is placed in a Kjeldahl flask. Add 20 cc concentrated sulfuric acid. Add approximately 1 gram $CuSO_4$. Add 11 grams anhydrous sodium sulfate (can do determination without this addition, but the boiling point is raised and the digestion proceeds faster).

Boil rather rapidly until water boils off, and the solution turns black. Digest more slowly then until solution becomes colorless. White fumes are given off during this process, so the determination must be carried out under a hood. The digestion requires 2½-3



hours for its completion. When the solution solidifies (if the 11 grams of sodium sulfate has been added), agitate the flask to allow the crystals to form on the side of the flask, which will make redissolving easier. If the sodium sulfate has not been added the solution may be a dirty gray-white and will not solidify upon cooling. This is all right, if no carbon remains in the solution after digesting.

When cool, add a small amount of water to redissolve the crystals. Be careful of heat when adding the water to the acid. When all is dissolved, add 40% NaOH carefully. As the acid becomes neutralized the black copper oxide will start to precipitate out. When this no longer dissolves, add an excess of the 40% NaOH (requires about 100 cc of 40% NaOH). As soon as the excess NaOH is added, connect the flask to the apparatus which has been set up as pictured. Start the flame under the flask being careful that none of the sulfuric acid sucks back. In the bottom of the Kjeldahl flask some pebbles and metal zinc should be placed to avoid bumping. Do this *before* adding the NaOH.

The NaOH liberates the ammonia which will be driven over into the 50 cc of 0.1 normal sulfuric acid and absorbed. Continue the distillation until about one-third of the mixture in the Kjeldahl flask has been distilled over. Disconnect the apparatus, keeping the flame under the Kjeldahl flask until after the system has been disconnected to avoid sucking back. The sulfuric acid will now contain all the ammonia which was in the serum at the start. *If,* however, upon titration it is found that very little ammonia has come over, the mixture was not made sufficiently alkaline. Add a definite excess of NaOH 40%, and repeat the performance, adding that titration value to the first one obtained.

The titration: The sulfuric acid is titrated with 0.1 N NaOH using methyl orange as the indicator. The end-point is red to yellow. Approximately 15 cc of the NaOH will be required which means that about 35 cc of the sulfuric acid was neutralized by the ammonia.

Calculation: Subtract the number of cc of 0.1 N NaOH from the 50 cc of acid 0.1 N sulfuric acid which was used to start with.

50 — 15 = 35 cc of 0.1 N sulfuric acid neutralized by the ammonia.

Multiply this result by 0.0014 which will give the grams of nitrogen present, since a 0.1 n solution of nitrogen would contain 1.4 grams per liter or 0.0014 grams in a cc. Normal solutions can be compared with normal solutions.

Since 40 cc of the 1:10 dilution was used in the beginning for the digestion, this would be equivalent to the nitrogen in 4 cc of serum. So, divide this above result by 4. This gives the total nitrogen in grams per cc of serum.

Subtract the NPN now, but express it in grams, as 0.00025. This result will be the grams of nitrogen due only to protein in 1 cc of original serum.

Multiply this result by 6.25 to get the grams of protein in 1 cc. The result should be approximately 0.075 grams of protein in 1 cc.

To Make Dilutions of This Stock Standard

Example: For the Denis-Ayer protein standard a solution containing 30 mgs. protein per 100 cc solution is desired. Since this solution contains approximately 75 mgs per cc, divide the 30 by the 75. But this was a 1:10 dilution of the original blood serum, so multiply that figure by 10. This will give the number of cc of the stock solution to make up to 100 cc with distilled water to give a 30 mgs % standard.

To give a specific example to illustrate the calculation:

NPN = colorimeter reading 18.6 $\quad 18.6 \overline{)\,6000.0}^{\,32.}$ $\quad$ NPN = 32 mgs.

Titration figure = 16.5 $\quad$ 50.0
$\quad\quad\quad

.0014
x 33.5

0.04690 gram of nitrogen present in 4 cc serum

.01172
4/ 0.04690 .01172 = Total nitrogen in grams per cc of serum

.01172
—.00032 = NPN expressed in grams

.01140 = grams of nitrogen due only to protein in 1 cc of serum

.01140
x 625

5700
2280
6840

.0712500 = grams of protein in 1 cc
= 7.1 gms %

(the answer should be approximately 0.075 gms. cc)

ABSTRACTS

REACTIONS TO TRANSFUSIONS OF BANKED BLOOD: R. I. Carlson, Yale Jr. Biol. & Med., vol. 16, No. 2, Dec. '43, p. 167.

Reactions occurred in 6% of a series of 3,388 transfusions of banked blood given over a period of 2 years. Three of these were hemolytic, 3 were jaundice without hemolytic reaction, 2 were anaphylactic and 3 cardio-vascular. One death occurred.

Iso-agglutinins, particularly in regard to Rh factors may have been present as no Rh examination was made. Factors responsible for allergic reactions were not determinable. Few of the patients gave a positive allergic history before developing an allergic reaction.

Febrile reactions are usually attributed to pyrogenic substances present in the apparatus. The fact that they generally occur in cycles supports this view. Previous literature is cited for the statement that care in preparation of equipment can reduce febrile reactions from 12% to 1% and that any incidence greater than 5% points toward improper preparation of equipment.

THE EXAMINATION OF PARACENTETIC FLUIDS FOR MALIGNANCY: H. Jeter, C. Epps & M. S. Hart, Sou. Med. Jr., 35, May '42, p. 519.

In the gross examination color is of little value except as associated with blood. Specific gravity was found to vary from 1.014 to 1.026 and its determination is recommended as of routine importance. Viscosity should be observed because colloid carcinoma is frequently metastatic to the peritoneum. Chemical determinations are not recommended as routine because they parallel the blood values.

For histological examination, the entire specimen should be treated with a fixative and refrigerated until used. Concentration of the entire specimen by centrifuging is preferable to the use of only a small amount. Blood clots or coagulum should also be

embedded and sectioned. Direct smears may be made of the semi-concentrated fluid.

Emphasis is laid upon the necessity of examining for "tumor fragments" rather than "tumor cells." Of 165 fluid examinations made, 92 gave positive results.

INFECTION DUE TO SALMONELLA CHOLERAESUIS: P. C. Eschweiler, J. G. Wahlin & Ann Snow. Ann. Int. Med., vol. 20, No. 2, Feb., '44, p. 275.

Three cases of Salmonella choleraesuis of the Kunzendorf variety are discussed. In all three, the diagnosis was made by blood culture. Veal infusion medium containing 0.1% agar was used for the primary cultures. Fermentation reactions as well as other cultural characteristics and agglutination reactions were used to identify the organism. Sporadic infections are of 2 main types. The first, bacteremia without localization, is similar to typhoid, with sudden onset, chill, elevation of temperature and depressed white blood count. In the second type, bacteremia with localization, the most common site of localization is the pulmonary area with symptoms resembling broncho-pneumonia. Localization may also occur in the bones and large joints, endocardium, urinary tract, meninges, etc. These show increased white blood counts. Cultural findings in the sputum, stool and urine were not found reliable.

SEASONAL GASTROENTERITIS IN COLORADO: H. Gauss. Am. Jr. Diges. Dis., vol. 11, No. 2, Feb., '44, p. 40.

An outbreak of acute gastroenteritis has been observed repeatedly in the early fall in Colorado. Outbreaks of this general type have also been studied in other areas. Laboratory studies have not revealed a causative organism. Epidemiological studies have suggested contact or droplet infection but attempts to infect monkeys by means of nasopharyngeal washings have not been successful.

STUDIES ON INFECTIOUS MONONUCLEOSIS: L. A. Julianelle, O. S. Bierbaum & C. V. Moore. Ann. Int. Med., vol. 20, No. 2, Feb., '44, p. 281.

This work was undertaken to demonstrate a specific virus as the cause of infectious mononucleosis. Materials used to transfer the inoculum from patients to experimental subjects were blood, gargle washings and saline extracts of excised lymph nodes. Experimental

subjects were rabbits, monkeys, white mice, guinea pigs and a few men. The material suspected of carrying the infecting organism was injected intramuscularly, used for gargle or sprayed into the nasopharynx.

While changes in the white blood cells were observed, they were not greater than might be expected in response to the foreign material and at no time were the cells characteristic of this disease prevalent. Production of heterophile antibody was irregular, of low titre and frequency.

The presence of a virus was not demonstrated.

A NEW AID IN CONTROL OF HEMORRHAGE IN SEVERE DAMAGE TO THE LIVER: Transfusions of Blood Fortified by Administration of Vitamin K to Donors: R. E. Kinsey. Arch. Int. Med., vol. 73, No. 2, Feb., '44, p. 131.

Four detailed case histories are presented of patients with acute yellow atrophy of the liver accompanied by hemorrhagic tendencies. Repeated transfusions were not effective in controlling the bleeding but when vitamin K was administered to the donor prior to the withdrawal of blood, this blood brought about control of the bleeding in the patient. Various dosages and methods of administration of the vitamin K to the donor are discussed but the recommended is 6-10 mg. menadione given intramuscularly during the 24 hrs. preceding the transfusion.

THE EFFECT OF REPEATED DETERMINATIONS ON THE BASAL METABOLISM OF CHILDREN: R. C. Lewis, A. M. Duval & A. Iliff. Am. Jr. Physiol., vol. 140, No. 4, Jan., '44, p. 461.

Though experience on the part of the child does make a satisfactory determination easier to achieve, it did not result in any significant difference between the subsequent satisfactory readings in these experiments. The subjects in this case were children between the ages of 2 and 10 years.

BLOOD VITAMIN A AND CUTANEOUS DISEASES: T. Cornbleet, H. Popper & F. Steigmann. Arch. Derm. & Syph., vol. 49, No. 2, Feb., '44, p. 103.

Plasma vitamin A studies were made of 55 patients with dermatological diseases and of a control group. Methods used were those of Kimble and of Josephs and observations were made either with

the photoelectric colorimeter or by means of copper sulfate standards. Few low levels were found. Two patients with disseminated lupus erythematosus and one with Devergie's disease had low levels for vitamin A. One case of pruritis showed high levels for carotenoid substances accompanied by jaundice. The authors suggest that the low levels in disseminated lupus erythematosus may be due to the general depression of bodily function characteristic of this disease.

THE ROLE OF PENICILLIN IN THE TREATMENT OF BACTERIAL INFECTIONS: W. E. Herrell. Sou. Med. Jr., vol. 37, No. 3, Mar., '44, p. 150.

Infections due to the following organisms have been successfully treated with Penicillin: Diplococcus pneumoniae, Streptococcus pyogenes, Streptococcus salivarius, Micro-aerophilic streptococci, S. Aureus, S. albus, Neisseria gonorrhoeae, Neissera intracellularis, Actinomyces bovis, Bacillus anthracis, B. subtilis, Clostridium botulinum, Cl. tetani, Cl. welchii, C. diphtheriae, Vibrio comma, Micrococcus, Streptobacillus moniliformis, Borrelia novyi, Treponema pallidum.

Dosage and methods of administration are discussed as are the clinical observations. Among the infections in which Penicillin therapy was ineffective the outstanding is subacute bacterial endocarditis. This was not successful even when the causative organism was one ordinarily susceptible to Penicillin.

The Gram negative groups of intestinal organisms, Haemophilus influenzae, Monilia, Blastomyces and S. Faecalis were not affected by Penicillin.

The sodium and calcium salts of Penicillin have thus far been most satisfactory. They may be administered intravenously or intramuscularly.

TORULA INFECTION: R. E. Burger & C. B. Morton. Surgery, vol. 15, No. 2, Feb., '44, p. 312.

This type of organism most commonly affects the central nervous system probably entering through the upper respiratory tract and lungs. It may also result in a generalized infection.

Torulosis is discussed and some of the literature reviewed. Case histories of 4 additional cases are given in detail. One was a

torulosis of the central nervous system and is classified as of the purely meningeal form. Spinal taps did not show the organism and diagnosis was at autopsy. In the second instance a diagnosis of Hodgkin's disease was made from a biopsy 3 mos. before death. Torula produces granulomatous lesions closely resembling those of Hodgkin's disease. Kidney lesions indicated that the organism must have been excreted in the urine. This should not be overlooked as a diagnostic aid. The third case was one of the rare localized infections. This occurred in the thigh and amputation plus application of potassium iodide has apparently cured it. In the fourth case the organism was repeatedly recovered from the spinal fluid.

A follow-up report is also given of a case observed for 3½ yrs. The organism was repeatedly recovered from the spinal fluid but spinal drainage alleviated symptoms sufficiently to permit return to work.

EFFECT OF DIGESTIVE JUICES UPON PENICILLIN: An editorial. Sou. Med. Jr., vol. 37, No. 3, Mar., '44, p. 184.

Observations of the obstacles encountered in the oral administration of penicillin are discussed. It was destroyed by normal gastric juice but was apparently not affected by saliva, bile or intestinal juice. Penicillin given by mouth to patients with achlorhydria could be recovered in the blood stream. Absorption also occurred in a normal individual when alkali was administered with the penicillin. Administration into the duodenum by tube was also successful. Administration in enteric covered capsules has not been too successful because unless the capsule disintegrated in the upper intestine, the bacteria of the tract inactivated the penicillin.

DIPHTHERIA IN THE TROPICS: R. F. Morris, R. A. Kern, H. P. Schenck & L. E. Silcox. U. S. Nav. Med. Bull., vol. 42, No. 3, Mar., '44, p. 518.

Eighteen cases of diphtheria are reported from a hospital ship in the region of the Solomons. Evidence indicates that the disease was contracted from the natives rather than from the military personnel. Diphtheria in the tropics can exist in such a mild form that it is often undiagnosed until paralytic symptoms develop. Its chief danger, from the epidemiological standpoint, is the fact that this mild form, when introduced into colder areas, becomes extremely virulent.

BACTERIAL FLORA OF FRESH ACCIDENTAL WOUNDS: W. A. Altmeier & E. W. Gibbs. Surg., Gyn. & Obstet., vol. 78, No. 2, Feb., '44, p. 164.

In this survey 99 wounds were studied. Cultures were obtained from the total devitalized tissue obtained from the wound. All but 4 showed growth. Of these four, 2 cultures were believed to have been overheated by a faulty incubator and 2 of the wounds showed bacteria in a direct smear. Fifteen wounds showed pure cultures, the others showed from 1-8 different species of bacteria. Bacterial incidence was as follows: Staphylococci 86%, Streptococci 54%, Enterobacilli 20%, Cl. welchii 39%, other clostridia 6%, bacterioides 11% and anaerobic and microaerophilic streptococci 8%.

The authors conclude that probably all accidental wounds are already contaminated by the time they receive medical attention. Organisms of the pyogenic group are secondary contaminants in most injuries and thus it is wise to cover a wound with sterile gauze at once.

THE INFLUENCE OF A MONOCYTOSIS OF THE PERIPHERAL BLOOD STREAM UPON THE CELLULAR CHARACTER OF AN ACUTE INFLAMMATION: J. B. Frerichs. Bull. Johns Hopkins Hosp., vol. 74, No. 1, Jan., '44, p. 49.

In the early stages of acute infection, polymorphonuclear leukocytes predominate but ultimately the monoclears come into prominence. This study was undertaken to see whether the number of monocytes would be increased in an acute inflammatory exudate of a non-hypersensitive, non-specific type when monocytes are prevalent in the peripheral blood.

Monocytosis was developed in albino rabbits by infecting them with Listerella monocytogenes. While the peripheral blood showed approximately 30% monocytes, an inflammatory process was produced by three intracutaneous injections of 0.1 cc. of beef infusion broth which had been concentrated 10x. A control series of animals were given only the broth injections. The sites of injection were removed at 6, 12 & 24 hrs. after injection. White blood counts, differential counts and blood cultures were made at each injection and at each biopsy in the infected animals. Bacterial stains and differential counts were made on the inflammatory exu-

dates. No bacteria were found. Lymphocytes were very rare.

Monocytosis in the peripheral blood accelerates the appearance of monocytes in the exudate of acute inflammatory processes. As monocytosis is characteristic of progressive tuberculosis, a parallel monocytic response might be expected in the tuberculous body in tuberculin reactions and in non-specific inflammations.

SAFE UNIVERSAL BLOOD: M. D. Willcutts and R. A. Hicks, U. S. Nav. Med. Bull., Vol. 42, No. 4, Apr. '44, p. 852.

Since the titre of serum is known to drop when sera are pooled, it was thought that the same effect might be obtained by pooling whole blood of Type 0. 500 cc. portions of blood were drawn into sterile bottles containing 50 cc. of preservative solution made up of 2.5 g. sodium citrate, 1 g. sodium sulfathiazole and 0.05 g. sodium merthiolate. Ten 500 cc. portions were gently mixed in an Erlenmeyer and reapportioned in 500 cc. amounts. A culture was taken for sterility and a pilot tube was taken as a check on hemolysis due either to too much agitation or to blood other than Type 0.

98 patients hospitalized for acute conditions were given a total of 240 pooled Type 0 transfusions. Type incidence among these patients was: Type 0 —40%, Type A —55%, Type B —4.7%. No Type AB people occurred in this series. No untoward reactions resulted. In one instance a patient of Type A apparently changed to Type 0 after the 30th transfusion.

BOOK REVIEWS

MINOR SURGERY: by Humphry Rolleston and Alan Moncrieff. Published by Philosophical Library, New York. Pp. 155. Price $5.00.

Although not endorsed any place in this book the names of the authors are recognized as prominent members of the British medical profession who have contributed much to the specialty of surgery for several decades.

This small text presents the subject of minor surgery in eighteen chapters, sixteen being devoted to a special anatomical site and the remaining two dealing with anesthesia and surgery in childhood. Apparently each chapter has been covered by a specialist in the surgery of that particular region since the authors so acknowledge the contribution.

The volume probably has the same scope as other similar presentations. There are 30 illustrations and an adequate index.

PRACTICAL MALARIA CONTROL: by Carl E. M. Gunther, M.D., B.S., D.T.M. (Sydney). Field Medical Officer, Bulalo Gold Dredging Limited, Territory of New Guinea, at present with the Australian Medical Corps. Philosophical Library, 15 East 40th Street, New York, N. Y. Price $2.50. Pp. 91. 1944.

The malaria problem looms large among the many confronting civilization today. Neither military nor medical scientists consider malaria a disease menace only, since on its effective control may depend the outcome of the battle of the Pacific.

In this small volume Dr. Gunther describes the conditions usually encountered in endemic areas and discusses the measures that can be used to prevent breeding of the vector, maintain the health of the immunes and regulate the conduct of the non-immunes in order to control the infection. He asserts that the difference is appreciable between the practical and the ideal approach. In the former circumstance both civilians and soldiers must be retained on the active list, while ideal operations anticipate eradication and prophylactic as well as curative treatment for all. The clinical types of malaria are described and the forms of therapy best

suited to the general civilian population are proposed. The author proposed in his foreword to limit his discussion to facts born of personal experience. While this individual flavor is evident one can agree with him that the lessons learned can be applied elsewhere.

The subject matter is presented in four parts, adequately subtitled and briefed to be easy reading. There are 91 pages, without index or table of contents, in an attractive cover. The type and paper are acceptable.

A SOURCE-BOOK OF BIOLOGICAL NAMES AND TERMS: By Edmund C. Jaeger, Riverside Junior College, Riverside, California. Charles C. Thomas, 220 East Monroe St., Springfield, Illinois. Pp. 256 (96 figures). Price $3.50 postpaid. 1944.

In this Source-Book you will find thousands of word elements or combining forms from which scientific names are made; the Greek, Latin or other words in which they have their origin. Then follow the examples (generic names, specific names, and technical terms each dissected into its proper parts) to illustrate their use in the building of scientific words. These examples show a wide variety of forms. All the more commonly known genera and technical terms are included and, in addition, many that are only used by workers in special fields. By combining these word elements in the numerous ways possible, more than a million words have been formed that are now used in scientific names and terms. This book will benefit you by: (1) Contributing to an easier remembrance of the correct spelling of scientific names and a more facile understanding and appreciation of their use in spoken as well as written composition; (2) Serving as a guide to a more intelligent pronunciation in which the effort is to preserve the classical sources of the words rather than to conceal them by the rigid rules of euphony.

Special Services and Useful Aids: Teachers of the biological sciences will find it useful and stimulating in the preparation of every lecture; they will wish every student to have it on the study table for constant reference. Students of medicine and dentistry, veterinarians, foresters, ranger-naturalists, quarantine officers, crop inspectors, paleontologists, physiologists, entomologists, biologists, botanists, zoologists, mycologists, technical workers in special scientific fields, and laymen who have as a hobby a scientific subject, will find it a book constantly useful and brimful of explanations of

interest and of service. Teachers of Latin and Greek interested in teaching the derivation of words useful to science students will find here a veritable store-house of useful information. Scientists will find it a ready and rich source of word elements useful in coining new names. A boon to a generation of younger scientists who have had little training in Greek and Latin. For those who are unacquainted with the Greek characters, the Greek words, which serve as bases for so many combining forms, have been transliterated into English. For those who would like to understand and appreciate the methods of governing the use of the classical stems and roots in the construction of scientific names, a comprehensive chapter on the philosophy of word building is given.

TECHNIC OF ELECTROTHERAPY AND ITS PHYSICAL AND PHYSIOLOGICAL BASIS: by Stafford L. Osborne, M.S., Ph.D., Assistant Professor, Department of Physical Therapy, Northwestern University Medical School, and Harold J. Holmquest, B.S., B.S. (M.E.), Lecturer in Applied Physics, Department of Physical Therapy, Northwestern University Medical School. Charles C. Thomas, Publisher, Springfield, Illinois, 1944. Pp. 760. Price $7.50 Postpaid.

The subject matter of this treatise comprises essentially that which has been taught for the past sixteen years to classes for physicians, medical students and technicians. The material is divided into four parts: (1) The fundamental principles involved in the technical application and effects of direct current; (2) Electrophysiology, apparatus used therein and the application of the various currents used; (3) The physics and technic of thermogenic and ultraviolet radiation, and (4) The application and physiologic effects of high frequency currents.

Each section discusses the physical and physiologic principles involved in electrotherapy, thereby affording in well chosen descriptive terms the why, how and what of this special and valuable form of treatment.

From cover to cover the book shows intelligent construction and fine workmanship. There are 760 pages of text, an extensive index, 240 figures, 293 illustrations and 72 tables. It appears to offer a course of instruction for either those versed in the science or for those untrained but desiring knowledge of electrotherapy.

NEWS AND ANNOUNCEMENTS

INTERNATIONAL COLLEGE OF SURGEONS MEETING

The program at the Ninth Annual Assembly of the United States Chapter of the International College of Surgeons will be devoted to War, Rehabilitation and Civilian Surgery. The sessions will be held at the Benjamin Franklin Hotel in the City of Philadelphia, October 3, 4, 5, 1944.

The convention opens at 10:00 A. M. on Tuesday, October 3, with an address by Hon. Bernard Samuel, Mayor of the City of Philadelphia, to be followed by Dr. Rufus S. Reeves, M. D., Director of Public Health, Philadelphia; Hubley R. Owen, M. D., President of the Philadelphia Academy of Surgery, and Charles L. Brown, M. D., President, Philadelphia County Medical Society.

In the evening "Service Night" the guest speakers will be Vice Admiral Ross T. McIntire, M. C., U. S. Army; Major General George F. Lull, Deputy Surgeon General, U. S. Army; Captain Joel J. White, M. C., U. S. Army; Dr. Charles M. Griffith, Medical Director, U. S. Veterans Administration, and other distinguished guests.

Dr. Morris Fishbein will be the principal speaker at the Convocation exercises on the following evening when one of the largest classes in the history of the college will be accepted into fellowship and membership. Dr. Rudolph Jaeger, formerly of Denver, Colorado, and now in charge of Neuro-surgery at Jefferson Hospital, Philadelphia, will be inducted into office as the new president of the United States Chapter.

Among the activities planned are a tour of hospitals and attendance at clinics under the direction of Dr. Leonard D. Frescoln of Philadelphia, participation by more than fifty prominent surgeons and others engaged in the work of rehabilitation and occupational

therapy who will present 20-minute papers during the morning and afternoon sessions.

There will be general surgery in one group and alternating groups of Gynecology and Ear, Nose and Throat.

More than 250 feet of panel space has been set aside for scientific exhibits, some of which are being shown at this Assembly for the first time. Among these exhibits are "Thyroid Surgery demonstrating a new triangle for the localization of recurrent aryneal nerve on the basis of new landmarks," "Neurosurgery," "Surgical Treatment of Cancer of the Rectum without Colostmy and Preservation of the Sphincter Muscles," "Sclerotherapy," and many other interesting and instructive exhibits.

Among some of the special features to be shown are a new exhibit on War Activities by the American Red Cross and the original paintings "The Seven Ages of the Physician" through the courtesy of the Ciba Pharmaceutical Products, I. C., and "Pioneers of Medicine" through the courtesy of Wyeth, Incorporated.

A variety of motion pictures in black and white and in color will be shown on craniocerebral surgery, bone and joint surgery, plastic surgery, as well as some new and original pictures dealing with medical entities.

Special arrangements have been made with hotels in Philadelphia to take care of visitors coming from distances. Information may be secured from Dr. Benjamin Shuster, Philadelphia, Pa.

The medical profession is invited to attend the Assembly and its sessions.

SANITARY CORPS OFFICERS NEEDED

The Army Medical Department needs 500 officers for assignment to the Sanitary Corps to fill vacancies and to relieve physicians and surgeons for professional duties. A survey of civilian and Army personnel is now being made to find qualified entomologists, sanitary engineers, bacteriologists, biochemists, parasitologists, nutritionists, and industrial hygiene engineers. Qualified officers in other branches of the service whose qualifications are not fully used in their present assignments will be considered for duty with the Sanitary Corps. Requests should be forwarded to Adjutant General, U. S. Army.

Civilians, Warrant officers and enlisted men will be given direct appointments as officers in the Sanitary Corps. Qualified civilians should apply in writing to Officer Procurement Service in Headquarters of the Service Command in which they reside or to Officer Procurement Service, Washington 25, D. C.

COLORADO

The Colorado Society of Medical Technologists held their Ninth Annual Convention on May 28, 1944, at the Cosmopolitan Hotel, Denver, Colorado. An interesting program was presented. The officers for 1944-1945 are: President, Mabel Stewart; Vice President, Edna Mains; Corresponding Secretary, Marjory Mayberry; Recording Secretary, Effie Melching; Treasurer, Margaret Horton.

MINNESOTA

A board of directors' meeting was held in the staff room of St. Joseph's Hospital, St. Paul, Minnesota, Saturday evening, July 15, 1944. The newly elected president, Mr. Chauncey Winbigler, presided.

The following letter, addressed to the members of the Minnesota Society of Medical Technologists through the official organ of the society, *Minnesota Medical Technologist*. It is being reprinted here for the message it carries seems the message that ought to be addressed to all the technologists of the nation.

Hello, everybody. This is Frieda Claussen speaking. (What, again?) I know at least some of you are anxious to hear all about what went on at the Chicago convention, and as one of your official delegates I should be giving you a really official report. I certainly plan to do this, but I have so much else to say first that I know I can't get it all into one letter. I don't believe your editor would allow me that much space in one issue of the paper.

First of all I must tell you, I'm so proud of Minnesota that I could burst. Do you know that we had six state members at the convention—five real members and a guest member? Why, even that great big state of Pennsylvania didn't have enough to fill their

delegate quota. And we've never had as many before . . . and these girls have made a ***name*** for our state society. I just basked in the reflected glory of all (their) brilliant work.

My term of office on the board of directors (ASMT) has expired, after several years on this board following my year as president. No one is in a better position than I to realize the splendid contributions all these members have made and are making (reference to members of American Society of Medical Technologists). I know that I can safely speak for the entire state and national membership in offering them a vote of thanks and appreciation.

And yet, in spite of all this, Minnesota could only have *two* delegates present at the meeting of the House of Delegates (besides myself as officer), because we only have *twenty-six* national members out of a state membership of 140. And in the national society we are allowed one delegate for every *twenty-five* members, *and* fraction thereof. So we only got those two in by the skin of our teeth. Doesn't that make you just a little bit ashamed?

Really, I wish every last one of you could get a chance to go to some of these national meetings. (Of course there's no reason why you shouldn't, as a matter of fact.) They're so stimulating, so exciting, and so darn much fun, that they really are worth a little time, effort, and expense. (Ask anyone who's been to one.)

Just imagine what it would mean to you and your work, to hear scientific papers on all the latest laboratory procedures, read by the people who actually did the work, and know the problems and pitfalls of the subject, and who can answer your questions on the spot. That's much different than just reading articles in journals. Just imagine being able to see exhibits of actual demonstrations, of slides and procedures, with someone right there to show you the "How" and the "Why" of it. (And incidentally we are privileged to go to the Pathologists' exhibits, too, and to those of the American Hospital Association.)

Just imagine being able to view in one huge room, every conceivable piece of recently developed laboratory equipment, and having someone right on hand to demonstrate it for you, instead of looking at pictures in a catalogue, and wondering how the thing operates, or what it's for. (And by the way, the commercial ex-

hibitors are very helpful in solving problems. I learned more about fluctuating needles on the photelometer in five minutes from one of the salesmen, than from the hospital engineers, Northern States Power Co., and General Electric Co. all put together. I learned that the Difco Co. also has trouble with their beef-heart and sometimes have to dump out unsatisfactory batches of antigen, too. There's always a satisfaction in hearing that other people have troubles, too.)

Imagine meeting technologists and pathologists from every part of the country, getting acquainted, exchanging ideas, hearing their problems, and airing your own, and picking up all sorts of little helpful suggestions thereby, running into old friends who used to go to school in your state, or work there.

Imagine combining business with pleasure and visiting places like Chicago, Cleveland, New York, and Atlantic City, and having your entertainment all planned for you. Luncheons at interesting restaurants, tickets for radio broadcasts arranged for, and the final wind-up of the annual banquet, where the pathologists get up and tell us what a wonderful bunch we are, where the awards of cash prizes and medals for the three best papers and two best exhibits are made, and where you just can't help but get thrilled at the importance of your own chosen profession.

Imagine sitting in on a House of Delegates meeting, and really having a word on all the national and vital questions that we have to deal with — Educational, State, Licensure problems, economic problems such as those of supply and demand, and problems such as those of obtaining commissions for ASCP registered medical technologists in the armed forces of the U. S. A. I would be willing to wager that not one of you, who has never attended a convention, realizes a fraction of the individual time and effort that has been given to these problems. People *busier than you* are in there plugging for *you*, working for advantages for which you will eventually reap the benefit. In my official report I'll tell you some of the things for which we are working. But even so I can only give you a smattering of what really goes on. You'll never really *know* 'til you find out for yourselves. It's like the differences between somebody telling you how to run a lab. test, and actually running it yourselves, and *you* know what that means.

Well, I could honestly go on forever, but I guess I have to stop some time. And in case I have succeeded in inspiring any of you to work now towards future possibilities, I'll just outline the three steps of approach:

1. Register with the ASCP (for all of you state members this is already done but I must remind you to PAY YOUR ANNUAL RENEWAL FEES).

2. Join the American Society of Medical Technologists by sending for an application blank to: Miss Hermine Tate, M. T. (ASCP) Executive Secy., ASMT Medical Center Bldg., Lafayette, Louisiana. When your application blank comes fill it in *at once* and don't put it off. Initiation fee is $1.00, annual dues, $4.00. Fiscal year starts July 1st, only requirement is PAID UP registration with ASCP.

3. Start planning now for the future. Start talking to your boss and show him this letter. Start saving your pennies for a trip to a convention. Start thinking about something you might have to offer in the way of a paper or exhibit. (Remember the cash prizes and medals.)

You never realize how little you know until you've been to conventions. Maybe you rather stay just the way you are and just where you are and not learn that disturbing little point. Personally I'd rather take a good stimulant once in a while, and I can't imagine a pleasanter way of taking it.

Until then, goodbye, everybody.

Sincerely yours,

Frieda H. Claussen M. T. (ASCP)

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STATE AND LOCAL SOCIETIES

Name of State or Local Society	A.S.M.T. Affiliation	Meetings	Secretary's address
Caddo Parish Society of M. T. 1943-'44 Pres. A. Merlin McKinnon	non-aff.	monthly	Harriet H. Cypert, M.T. Barksdale Field Hosp. Barksdale Field, La.
California Association of M. L. T. (Santa Barbara Chapter) 1943-'44 Pres.—Grace P. Butera	non-aff.	monthly	Florence Connelly, M.T. 317 West Pueblo Str. Santa Barbara, Calif.
Chicago Society of M. T. 1944-'45 Pres.—Dorothy Laestar	aff.	monthly	Ada Meloy, M.T. 1575 Florence Ave. Evanston, Ill.
Colorado Society of M. T. 1943-'44 Pres.—Allyne E. Lawless	aff.	monthly	Edna Mains, M.T. 2432 West Argyle Pl. Denver, Colo.
District of Columbia Society of M. T. 1943-'44 Pres.—Zanerian E. Funk	aff.	monthly	Evelyn F. Ballou, M.T. 4105 Third Street N. W. Washington, D. C.
Illinois Society of Clinical L. T. 1944-'45 Pres.—Fannie Warnock	aff.	semi-ann.	Edna H. Murmann, M.T. 3924 N. Monticello Ave. Chicago, Ill.
Indiana State Society of M. T. 1943-'44 Pres.—Virginia Sue Alley	aff.	annual	Hazel M. Childs, M.T. Indianapolis City Hosp. Indianapolis, Ind.
Inland Empire Society of M. T. 1943-'44 Pres.—Frances Premo	non-aff.	annual	Lenore De Vor East 547 Gordon Spokane, Wash.
Little Rock Society of M. T. 1943-'44 Pres.—Marcella Drilling	non-aff.	quart.	Lila Church 2116 Orange Street Little Rock, Ark.
Minnesota Society of M. T. 1944-'45 Pres.—Mr. Chauncey Winbigler	aff.	annual	Thelma Erickson, M.T. 1211 East 4th Street St. Paul 6, Minn.
Nebraska Society of M. T. 1943-'44 Pres.—Wilma Eicher	aff.	annual	Mary H. McMillan, M.T. 434 Aquila Court Omaha, Nebr.
New Hampshire Society of M. T. 1943-'44 Pres.—Sister Marie-Rose (Larivee)	aff.	annual	Marion P. MacMartin, M.T. Mary Hitchcock Mem. Hosp. Hanover, N. H.
Niagara Frontier Association of M. T. 1943-'44 Pres.—Wilma Riehle	aff.	monthly	Mrs. Angela Auer, M.T. 16 Duerstein Ave. Buffalo, N. Y.

Name of State or Local Society	A.S.M.T. Affiliation	Meetings	Secretary's address
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Oklahoma Society of M. T. 1944 Pres.—Marie Clark	aff.	semi-ann.	Leilla Woodworth, M.T. 604 S. Cincinnati Tulsa 3, Okla.
Omaha-Council Bluffs Society of M. T. 1943-'44 Pres.—Kathern Belle Forest	non-aff.	bi-mo.	Josephine Benal, M.T. City Health Dept. City Hall, Omaha, Nebr.
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Key: (aff.—affiliated with A. S. M. T.)
(non-aff.—not affiliated with A. S. M. T.)
(semi-ann.—semi-annual)
(bi-mo.—bi-monthly)
(quart.—quarterly meetings)

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Editorial Staff
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